

VOLZHENSKIY, Aleksandr Vasil'yevich, Laureat Leningradskoy premii,
doktor tekhn. nauk, prof.; BUROV, Yuriy Sergeyevich,
kand. tekhn. nauk; VINOGRADOV, Boris Nikolayevich;
GLADIKH, Klara Vasil'yevna, kand. tekhn. nauk;
NIKOLAYEVA, N.M., red. izd-va; SHERSTNEVA, N.V., tekhn. red.

[Concretes and products based on slag and ash cements;
hardened in steam chambers and autoclaves] Betonny i izdeliia
na shlakovykh i zol'nykh tsementakh; pri tverdenii v propa-
rochnykh kamerakh i avtoklavakh. Pod obshchei red. A.V.
Volzhenskogo. Moskva, Gosstroizdat, 1963. 361 p.

(MIRA 16:12)

(Precast concrete)

"APPROVED FOR RELEASE: Tuesday, September 17, 2002

CIA-RDP86-00513R000

~~APPROVED FOR RELEASE: Tuesday, September 17, 2002~~

CIA-RDP86-00513R0005

VOIZOVSKIY, A.V., prof., i ktor tekhniki; GLADK, Z.M. i druzh, kand.
tekhn. nauk

Some ways of improving cellular concrete products. Stroim. 10
no. 0020-28 D 104. (MIRA 18:1)

S/145/60/000/012/006/008
D221/D301

AUTHORS: Komissarov, V. I., Candidate of Technical Sciences;
and Gladkikh, L. G., Assistant

TITLE: Investigation and calculation of errors due to temperature deformations of machined components during cutting

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Mashinostroyeniye, no. 12, 1960, 143-150

TEXT: The author gives the results of experimental investigations on longitudinal and transverse distribution of cutting heat; the effect of machining conditions and tool geometry on the heat quantity, thermal deformations in the component and their relationship to the main factors. The experiments were carried out with (Sch-21-40) cast iron bushes of 560 mm OD, whose inside diameter was varied from 450 to 500 mm. Their length was 800 mm and weight 315 - 315 kg. Carbide tipped tools BK8 (VK8) were used, whose geometry is described. The temperature was measured by a mercury

Card 1/3

Investigation and calculation ...

S/145/60/000/012/006/003
D221/D301

thermometer fixed in blind holes drilled in the machined surface (up to 18 thermometers were used). Immediately after the machining, a yoke with three micron indicators was placed at the end section to determine the deformations. In both transversal and longitudinal sections the distribution of heat is not uniform; in the former, maximum temperature is found at points where a considerable quantity of hot chips is accumulated during machining. The average temperature of components where the chips contributed to heat generation was 20 - 25% higher than in cases which chip removal during the machining. Formulae for errors in machining due to non-uniform heating are given. Effects of the cutting regime (speed and depth) are also considered. The authors deduce that the thermal deformations in microns are equal to $0.31 \cdot 10^{-4} D^2 / G \sqrt{2} v^{0.05}$ where ϵ - the feed in mm/turn; v - the speed of cutting in m/min, D - the diameter of the machined hole in mm; l - the length of machined hole in mm; G - the weight of component in kg. There is a good agreement between the calculated values of thermal deformations and experimental results. The amount of heat due to machining which enters

Card 2/3

Investigation and calculation ...

S/145/60/000/012/008/001
D221/D301

the component, the irregularity of its distribution and the thermal deformation depend on the physical and mechanical properties of the material, conditions of machining, size and weight of component. The obtained equations may be used for calculating the expected accuracy of boring. There are 6 figures, 2 tables and 3 Soviet-bloc references.

ASSOCIATION: Dal'nevostochnyy politekhnicheskyy institut (Far Eastern Polytechnic Institute)

SUBMITTED: April 23, 1959

24 (4), 28 (5)

AUTHORS:

Fuks, M. Ya., Gladkikh, L. I.

05724

SOV/32-25-10-13/63

TITLE:

Application of Hard X-Rays for Determining Residual Stresses

Investigation and calculation ...

S/145/60/000/012/002/00-
D221/D301

the component, the irregularity of its distribution and the thermal deformation depend on the physical and mechanical properties of the material, conditions of machining, size and weight of component. The obtained equations may be used for calculating the expected accuracy of boring. There are 6 figures, 2 tables and 3 Soviet-bloc references.

ASSOCIATION: Dal'nevostochnyy politekhnicheskiy institut (Far Eastern Polytechnic Institute)

SUBMITTED: April 23, 1959

24 (4), 28 (5)

05724

AUTHORS:

Fuks, M. Ya., Gladkikh, L. I.

SOV/32-25-10-13/63

TITLE:

Application of Hard X-Rays for Determining Residual Stresses

PERIODICAL:

Zavodskaya laboratoriya, 1959, Vol 25, Nr 10, pp 1193 - 1195 (USSR)

ABSTRACT:

Soft X-rays are generally used for measuring stresses of 1st order and microstresses. The hard X-rays, however, show some advantages, i.e. the dissolution of the K_{α} -doublet is better (because of the higher $\frac{\Delta\lambda}{\lambda}$ -value), and the widening of the line (by dispersity) decreases with a decrease in wave length. Therefore, a dissolution of the K_{α} -doublet takes place on lines with larger reflection angles, also in the case of strongly cold-hardened and highly disperse materials. The advantage of using hard X-rays is represented by means of radiograms (Figs 1,2) obtained for hardened carbon steel St 3 (the pictures were taken in molybdenum radiation by means of a tube of B. Ya. Pines' system). Comparisons of the two X-ray investigation methods (hard and soft rays) can be applied to the study of anisotropy. The measurement results obtained by the

Application of Hard X-Rays for Determining Residual
Stresses

05724
SOV/32-25-10-13/63

approximation method in iron radiation on lines (110) and (220), in molybdenum radiation on lines (321) and (651, 732), and in iron-molybdenum radiation on lines (651) and (220), are compared with respect to the amount of microstresses, and the range of coherent dispersion (Table). There are 2 figures, 1 table, and 1 Soviet reference.

ASSOCIATION: Khar'kovskiy politekhnicheskii institut im. V. I. Lenina
(Khar'kov Polytechnic Institute imeni V. I. Lenin)

FUKS, M.Ya.; GLADIKH, L.I.

Methods of determining lattice spacing from broadened
spectrum lines. Zav.lab. 28 no.6:697-700 '62. (MIRA 15:5)

1. Khar'kovskiy politekhnicheskii institut imeni V.I. Lenina.
(Crystal lattices)

FUKS, M.Ya.; GLADKIKH, L.I.

Investigation of oriented microstresses with the help of hard
X rays. Fiz.met.1 metalloved. 15 no.4:523-528 Ap '63.
(MIRA 16:6)

1. Khar'kovskiy politekhnicheskii institut imeni Lenina.
(Crystal lattices) (Metallography)

GLADKIKH, L.I.; KUZ'MENKO, O.G.; FUKS, M. Ya.

Comparing the results of investigation of powder specimens by
the methods of approximation and harmonic analysis. Zav. lab.
30 no.6:712-716 '64 (MIRA 17:8)

1. Khar'kovskiy politekhnicheskii institut imeni V.I. Lenina.

FUKS, M.Ya.; GLADIKH, L.I.

Some characteristics of the radiographic method of measurement of elastic stresses. Zav. lab. 31 no.8:978-983 '65.

(Cite 18:9)

L. Khar'kovskiy politekhnicheskii institut.

CA

19

Dielectric losses in borate glasses at high frequencies
A. E. Valtier, M. A. Gladikh and K. I. Martynov
Izv. Akad. Nauk SSSR (1963) 10, 1503 (1963). The
effect of admixed elements (Li, Na, K, Ba, Ca) on the
angle of dielec. losses in borate glasses was investigated.
The monotonic variations of $\tan \delta$ as the result of the
substitution of BaO by CaO, and of LiO by CaO was
obtained for the temp. interval -150 to +600°. For
large concns. of alkali, $\tan \delta$ was smallest when LiO was
substituted by K₂O. This min. becomes more sharp with
increase of temp. For small total concn. the introduction
of a second alkali oxide increases the dielec. losses, whereas
for the large concns. this can cause a sharp decrease.
Roksalana Garmov

ASAC-ALLA METALLURGICAL LITERATURE CLASSIFICATION

FROM: 1500000000

TO: 1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

1500000000

"APPROVED FOR RELEASE: Tuesday, September 17, 2002

CIA-RDP86-00513R000

~~APPROVED FOR RELEASE: Tuesday, September 17, 2002~~

~~CIA-RDP86-00513R0005~~

GLATYUE, M. A.

28414

Shiroko ispol'zovaniye solomu v tsel'lyulozno - khimicheskoy promyshlennosti. Dumazh. Prom-
stb, 1962, No 4 S. 13-15

SO: LITOPIS No. 24

"APPROVED FOR RELEASE: Tuesday, September 17, 2002
APPROVED FOR RELEASE: Tuesday, September 17, 2002

CIA-RDP86-00513R000
CIA-RDP86-00513R0005

GLADKIKH, M.A., inzhener; SHMAROV, V.I., inzhener.

Testing a power transformer produced by VEM. Elek.sta. 28 no.1:80-
81 Ja '57. (MIRA 10:3)
(Austria--Electric transformers)

ALEKSANDROV, V.A., inzh.; GLADIKH, M.A., inzh.

Quality of the insulation of water-wheel generators made by the
"Uralslektroapparat" plant. Elek. sta. 30 no.3:51-53 Mr '59.
(MIRA 12:5)
(Electric insulators and insulation) (Electric generators)

S/194/62/000/002/058/096
D273/D501

AUTHOR: Gladikh, M. F.
TITLE: Ultrasonic pulse range-finder for the automation of hydromonitors
PERIODICAL: Referativnyy zhurnal, Avtomatika i radioelektronika, no. 2, 1962, abstract 2-5-351 (Gorn. mashiny i avtomatika. Nauchno-tekhn. sb., 1961, no. 1 (18), 14-17)

TEXT: This is a note on the exploitation of an ultrasonic range-finder in *ЭНУАПулуп/сбл* (VNIIGidrougol') in which a magnetostrictive converter is used, working at a frequency of 30 kc/s. The location of the active area is accomplished at the output of the stream of a hydromonitor from the pile of a slope. The range-finder contains apart from the transmitter and receiver, a pulse generator, an amplifier, a measuring instrument for macrosecond time intervals and an instrument for calculating distances. In view of the strong divergence of clusters in the actuators, conical focussing funnels are used. Preliminary experiments with the instrument have

Card 1/2

Ultrasonic pulse range ...

S/134/62/000/002/050/095
D273/D501

shown that it is possible to measure distances of up to 6 m with an error of -5%. [Abstracter's note: Complete translation.]

NECHAYEV, M.N., inzh., GLADIKH, M.F., inzh.

Analyzing the kinematics and dynamics of a mechanism with hydraulic connections using high-speed motion picture photography. Trudy VNI Gidrauglia no.4:28-32 '62. (VIFA 18:3)

1. Tsentrnyy nauchno-issledovatel'skiy i proyektno-konstruktorskiy institut ob'yekti usiya shirokolinenskim sposebom.

GLADKIKH, N., starshiy val'tsovshchik

We'll keep our word. Sov.profsoiuzy 7 no.15:9-10 Ag '59.
(MIRA 12:12)

1. Lys'venskiy metallurgicheskii zavod.
(Lys'va--Tin industry)

GLADKIKH, Nikolay Dmitriyevich

[The seven-year plan demands this; notebook of a delegate to the
12th Congress of Trade Unions of the U.S.S.R.] Etogo trebuet
semiletka; zametki delegata XII s"ezda profsoiuzov SSSR. Moskva,
Profizdat, 1959. 53 p. (MIRA 14:2)
(Trade unions)

60326

SOV/126-0-3-2/37

18.1210

AUTHORS: Palatnik, I.S., Fedorov, G.V. and Gladkikh, A.I.

TITLE: Study of Aluminium Alloys of the System Al-Cu-Fe on Specimens of Variable Composition

PERIODICAL: Fizika metallov i metallovedeniye, 1979, Vol 2, No 3, pp 378-386 (USSR)

ABSTRACT: Specimens of variable composition were prepared in vacuum by simultaneous evaporation and condensation of the constituents from three cylindrical evaporators (Ref 9 and 10) situated at distances of 70 mm from the collector at the corners of an equilateral triangle inscribed in a circle of 60 mm diameter. The processes of evaporation of the constituents were chosen so that a summary concentration range of copper and magnesium between 0.5 and 16% were ensured on the collector. By means of a photometric method (Ref 11) distribution functions for each of the metals were determined for the chosen evaporation process on the basis of which a calculation of the concentration by graphic methods was carried out (Ref 12). After establishing the required vacuum in the apparatus (approximately 10^{-5} mm Hg) for the removal of adsorbed gases, the collector was heated to a temperature of

Card 1/5

4

66226

SOV/126-8-3-9/33

Study of Aluminium Alloys of the System Al-Cu-Mg on Specimens of
Variable Composition

approximately 100°C, then cooled by running water and condensation of the film was brought about. During the condensation of this system on a polished steel collector, which was previously cleaned by treatment with boiling alkali, the specimen was seen to fracture as a certain thickness was attained, which was accompanied by exfoliation due to internal stresses which arise during condensation. At a sufficiently deep etch of the collector with concentrated nitric acid, specimens were obtained in which the junction between the film and the base was increased (probably due to condensation developed as a result of surface etching) and was sufficient for measuring the microhardness. However, the relatively uneven surface made microhardness testing somewhat difficult. In order to rectify this shortcoming a number of experiments was carried out on the application of polished and passivated aluminium as collector. Aluminium was chosen as base for the following reasons: the closeness of the coefficients of thermal expansion of aluminium and the condensate should bring about a decrease

Card 2/5

4

66226

SOV/126-8-3-9/33

Study of Aluminium Alloys of the System Al-Cu-Mg on Specimens of
Variable Composition

in internal stresses in the layer and a thick aluminium oxide layer ought to resist mutual diffusion between the condensate and the base. As aluminium oxide is closely adherent to the metal it can be expected that the condensed layer will also be firmly adherent to the aluminium oxide. Specimens of variable composition were investigated by microhardness and X-ray structural phase analysis methods. The microhardness was measured with the PMT-3 instrument at loads of 20 and 40 g. X-ray pictures were taken in the irradiation of an iron anode in a 0.5 mm diameter camera. The variable composition specimens were annealed in vacuum at various temperatures. Specimens obtained by deposition on the cooled steel collector were investigated by the microhardness method in the concentration range of 0.5 to 6% Mg and 0.5 to 0% Cu through 0.3 to 1% Cu and Mg along the C_{31} sections (Fig 1), along which the ratio between the concentration of copper and that of aluminium was kept constant (0.005; 0.010, 0.015 etc). Parallel with the microhardness testing

Card 3/5

✓

66226

SOV/126-c-5-9/33

Study of Aluminium Alloys of the System Al-Cu-Mg on Specimens of
Variable Composition

a qualitative X-ray phase analysis was carried out. Microhardness was tested two weeks after preparing the specimens. X-ray structural data for an alloy containing 3.3% Cu and 2.4% Mg are shown in Table 1. In Fig 6, comparative curves for the microstructure along the section Cu + Mg = 2% show: (1) literature data (Ref 7); (2) experimental results. Fig 7 shows similar curves along the section Cu + Mg = 5%. X-ray data for alloys condensed on a hot collector (200°C) are given in Table 2. Similar data for alloys condensed on a hot collector at 400°C are given in Table 3. The authors arrive at the following conclusions: A condition close to equilibrium for aluminium alloys of the system Al-Cu-Mg is attained either by annealing at approximately 250°C by mutual heterodiffusion or in the preparation process - condensation on a hot base (approximately 200°C) by surface heterodiffusion. Diagrams for the microhardness of the aluminium corner of the three-constituent system Al-Cu-Mg, after condensation and natural ageing, have been constructed; microhardness

Card 4/5

66226

SGV/126-8-3-9/75


Study of Aluminium Alloys of the System Al-Cu-Mg on Specimens of
Variable Composition

curves after annealing at 150 and 200°C for the sections
 $C_{31} = 0.025$ and 0.035 , and after annealing at 250°C for
the sections $C_{31} = 0.015$, 0.025 , 0.035 and 0.050 , have
been plotted. By means of the microhardness methods
metastable compounds of the Al_xCuMg_2 and Al_xCuMg type
have been found to exist which are responsible for the
great hardness of the condensed alloys. There are
7 figures, 3 tables and 14 references, 12 of which are
Soviet, 1 English and 1 German.

ASSOCIATION: Khar'kovskiy gosudarstvennyy universitet;
Khar'kovskiy politekhnicheskii institut (Khar'kov
State University; Khar'kov Polytechnic Institute)

SUBMITTED: June 28, 1958

Card 5/5



14.7700 (1137, 1136, 1158)
18.8100

²²⁹⁵⁸
S/126/61/011/005/003/015
E073/E535

AUTHORS: Palatnik, L.S., Konovalov, O.M., Gladkikh, N.T. and Kolesnikov, V. N.

TITLE: Investigation of the Three-Component Semiconductor Compound PbBiSe_2

PERIODICAL: Fizika metallov i metallovedeniye. 1961, Vol. 11, No. 5, pp. 677-680

TEXT: In investigating Pb-Bi-Se alloys of variable composition the authors discovered that the PbBiSe_2 compound has semiconductor properties. The Pb-Bi-Se alloys were produced by simultaneous evaporation and condensation of the components onto a glass base in a vacuum chamber (about 5×10^{-5} mm Hg). The temperature of the glass base varied between 20 and 120°C. Thus specimens of variable composition were produced which were in a highly non-equilibrium state and also in a state approaching the equilibrium one. The investigations included measuring the thermo e m f and also X-ray phase analysis. It was found that for a content of 28-44% Pb and 24-32% Se a sharp rise takes place in the thermo e m f (to 300 $\mu\text{V/deg}$). X-ray investigations showed for this range lines

Card 1/4

2958

Investigation of the Three-Component S/126/61/011/005/003/015
E073/E535

of a phase not hitherto known to exist in the investigated binary systems. The maximum thermo e.m.f. are obtained for alloys condensed onto a base at the temperatures 20 and 120°C. From the results it is concluded that the compound PbBiSe_2 forms and it was considered probable that this compound has semiconducting properties. Therefore, massive specimens of PbBiSe_2 compounds were investigated. These were produced from a charge corresponding to the stoichiometric composition except for the selenium where an additional quantity had to be added to ensure equilibrium pressure of the selenium vapours in the free volume of the ampoule at 1100°C. The charge was placed into a quartz ampoule which was evacuated and sealed after heating for two hours at 100°C. The thus produced compound was purified by zonal refining. The obtained PbBiSe_2 specimens had a tetragonal lattice with the parameters $a = 5.26 \text{ \AA}$, $c = 3.84 \text{ \AA}$. The temperature dependence of the electric resistance is plotted in Fig.3 (a - prior to zonal purification, during heating; b - same, during cooling; c - after zonal purification, during heating). Fig.4 shows the volt/ampere characteristic for a point contact (I, mA vs U, V). Fig.5 shows the dependence

Card 2/4

1958

Investigation of the Three-Component...
 12/10/41/011/01/001/010
 RUT/001

of the thermo e.m.f., $E, mV/^{\circ}C$, on the distance along the length of the ingot, mm (a - prior to zonal recrystallization, b - after zonal purification). It can be seen that $PbBiSe_3$ is a semiconductor compound. The specimens produced by the influence had an n-type conductivity and a rectification coefficient of 1000 to 1200. It was found that $PbBiSe_3$ can be produced by zone recrystallization; the structure of the compound did not change as a result of multiple zonal recrystallization. There are 2 figures, 1 table and 4 references: 3 Soviet and 1 English language reference: (Ref.3. Shockley, W. "Electrons and holes in semiconductors", Russian translation, 1957).

ASSOCIATION: Kharkovskiy gosudarstvennyy universitet
 A. N. Gor'kogo (Kharkov State University named
 A. N. Gor'kogo)

SUBMITTED: July 27, 1960

Card 3/4

S/O2C/61/140/003/010/020
B104/B125

AUTHORS: Palatnik, L. S., and Gladkikh, N. T.

TITLE: Effect of the microheterogeneous condensation of metals in a vacuum

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 140, no. 3, 1961, 567-570

TEXT: The authors have shown in a number of papers (L. S. Palatnik et al., DAN, 124, 808 (1959); Fiz. met. i metalloved., 10, 632 (1960); ZhFKh, 33, 1859 (1959); Fiz. met. i metalloved., 2, 374 (1960)) that the transformation of a sub-cooled unstable phase (e. g., subcooled vapor) into a stable phase (e. g., crystal) occurs via a metastable intermediate state (e. g., liquid phase) according to "step rule". The latter is not satisfied within an upper (θ_1) and a lower (θ_2) limiting temperature. The authors tried to determine the lower limiting temperature θ_2 for Cr, Pt, Ti, Fe, Co, Ni, Be, Cu, Au, and Ag. The metals were evaporated in a vacuum of about 10^{-5} mm Hg from tungsten spirals or from aluminum- or beryllium-oxide crucibles. A carefully polished Cu base layer (120·20·1 mm) was placed 70 mm away from the evaporator. A temperature gradient was produced on the base layer: one Card 1/4

Effect of the microheterogeneous...
end was water-cooled

S/O2C/61/140/003/010/020
B104/B125

Effect of the microheterogeneous...

S/G20/61/140/003/010/020
B104/E125

a distinct dip in region II. The authors' results are collected in Table 1. $\theta_2/T_g = 1/2$ can be regarded as a physical constant. There are 4 figures, 1 table, and 7 references: 6 Soviet and 1 non-Soviet. The reference to English-language publication reads as follows: R. S. Sennett et al., J. Opt. Soc. Am., 40, 203 (1950).

ASSOCIATION: Khar'kovskiy gosudarstvennyy universitet im. A. M. Gor'kogo
(Khar'kov State University imeni A. M. Gor'kiy)

PRESENTED: June 13, 1961, by S. A. Vekshinskiy, Academician

SUBMITTED: June 12, 1961

18-7520

22816

S/020/61/140/006/013/030

B104/B102

AUTHORS: Palatnik, L. S., and Gladkikh, N. T.

TITLE: Condensation mechanism of Cu-Ni alloys

PERIODICAL: Akademiya nauk SSSR. Doklady. v. 140, no. 6, 1961, 1297 - 1300

TEXT: In a previous paper (DAN, 140, no. 3 (1961)) the authors have studied the condensation of pure metals (Cr, Pt, Ti, Fe, Co, Ni, Be, Cu, Au, Ag) in vacuo. In the present paper they describe the condensation of a solid solution. Fig. 1 illustrates the scheme of the Cu-Ni alloy preparation. Cu and Ni were evaporated from crucibles 1 and 2 placed 60 mm away from each other. At a distance of 70 mm from the crucibles, the base layer (polished aluminum, 1.5 mm thick) was located. A temperature gradient from 320 to 30°C existed in the direction of AB. Temperature was measured with six thermocouples. By visual examination of the surface of the sputtered Cu-Ni alloys three regions could be discerned. Region I corresponded to the lowest temperatures. It had a regularly reflecting surface. In region II the surface was dull. In region III the surface was regularly reflecting, too. Slight, dull shadows were observed in

Card 1/3

Condensation mechanism of Cu-Ni alloys

27816
S/O20/61/140/006/013/030
B104/B102

subregions of III having very high temperatures. The boundary between I and II was diffuse, while that between II and III was clearly marked. With an increase of the Ni content the boundaries shift to higher temperatures of the base layer. The surface was examined with an MIM-8 (MIM-8) microscope. The structure in I could not be resolved (1000 \times). Fine-disperse particles ($\sim 10^{-4}$ cm) existed in II. A polyhedral structure ($\sim 10^{-3}$ cm) existed in III. With an increase of temperature the grains grew. The microhardness as a function of temperature of the base layer is shown in Fig. 2. X-ray diffraction studies proved the existence of two condensation processes: vapor \rightarrow solid and vapor \rightarrow liquid \rightarrow solid. There existed two solid solutions of Cu-Ni with different lattice parameters. The temperature range of the "microheterogeneous" condensation of alloys was wider than that of pure metals. There are 4 figures and 6 Soviet references.

ASSOCIATION: Khar'kovskiy gosudarstvennyy universitet im. A. M. Gor'kogo
(Khar'kov State University imeni A. M. Gor'kiy)

PRESENTED: June 13, 1961, by S. A. Vekshinskiy, Academician
Card 2/3

29816

Condensation mechanism of Cu-Ni alloys

S/020/61/140/006/013/030
B104/B102

SUBMITTED: June 12, 1961

Fig. 1: Scheme for production of specimens of varying composition.

Legend: (1) and (2) crucibles; (3) base layer; (4) thermocouples.

Fig. 2: Microhardness as a function of the temperature of the base layer.

Fig. 1

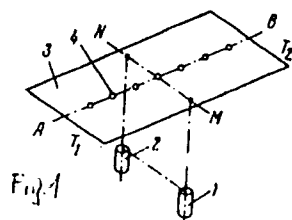
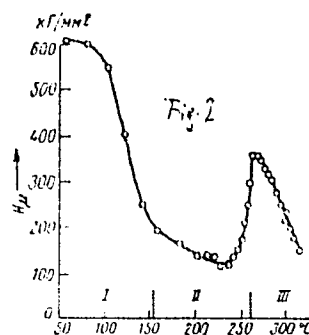


Fig. 2



Card 3/3

33358

8/15/82/COA/CO/04/052
BIOA/04/05

187530

AUTHORS:

Palatnik, L. G., Gladkikh, N. T., and Naboka, M. N.

TITLE:

Second (lower) temperature limit of In, Sn, Pb and Bi condensation

PERIODICAL:

Fizika tverdogo tela, v. 4, no. 1, 1961, 204 - 206

TEXT: The lower temperature limits of condensation of In, Sn, Pb and Bi were determined by evaporation and condensation on non-uniformly heated polished copper bases (120-10.1 mm). The evaporation rates were between 10^{-5} and 10^{-3} g/cm² sec. As was shown in previous experiments the condensate on the Cu plate consists of two bright and an intermediate mat section (L. G. Palatnik et al. DAN SSSR, 124, 608, 1960; DAN SSSR, 140, 567, 1961). In the mat section that corresponds to a certain temperature interval of the Cu plate two condensation processes take place: gaseous \rightarrow solid and gaseous \rightarrow liquid \rightarrow solid. This condensation is termed microheterogeneous condensation. The lower temperature limit G_2 of condensation lies within the mat section. If the temperature of the Cu plate is lower than G_2 , the

Card 1/1

33358

S/181/62/004/001/031/052

B104/B102

Second (lower) temperature . . .

metals crystallize gaseous→liquid; at temperatures above Θ_2 the metals crystallize gaseous→solid. The ratio Θ_2/T_s where T_s is the melting temperature of the metal is independent of the type of the metal and almost always $1/3$. The temperature interval of microheterogeneous condensation $\Delta\Theta_2 \approx 15 - 30^\circ\text{C}$. In the region of the upper critical limiting temperature also a region of microheterogeneous condensation exists: $\Theta_1/T_s \approx 2/3$ is given for the upper critical limiting temperature. There are 3 figures, 1 table, and 5 Soviet references.

ASSOCIATION: Khar'kovskiy gosudarstvennyy universitet (Khar'kov State University)

SUBMITTED: July 27, 1961

Card 2/3

1987/10/04/001/01
R102/100

AUTHORS Galanik, L. G. and Galanik, N. T.
TITLE Zn and Cd condensation conditions in the second limiting temperature region

PERIODICAL Fizika tverdogo tela, v. 4, no. 1, 1982, pp. 1-4

TEXT Layers of Zn, Cd and Zn-Cd alloy, were investigated, condensed on polished copper backings at temperatures between -180 and 0°C at rates of 10^{-6} - 10^{-3} g/cm² sec. Zn and Cd condensates can be divided into three temperature regions: I (low-temperature) on the liquid-nitrogen temperature side, III (high) on the 0°C side and II, between these two, when microheterogeneous condensation takes place. Microstructure analysis showed that a fine-crystalline structure (1-0.5 μ) occurs in III, a globular structure (1-2 μ) in I. II contains single crystals and globules at the same time. In I and III crystals and globules grow when the condensation rate ω is raised. The second (lower) limiting temperature Card 1/2

Zn and Cd condensation conditions in

5/151/62/004/011/11/11
B102/B152

in $\theta_1 = -42^\circ\text{C}$ for Zn and -71°C for Cd. The temperature range in which both metals condense microheterogeneously is $\Delta\theta \approx 10^\circ$. The number of islands increases with decreasing temperature. For Zn and Cd ranges ω exist in which no condensate forms. The Zn-Cd alloys also possess a range, $\omega = (2.5 - 5) \cdot 10^{-6}$ g/cm²-sec, where no condensate forms. For both metals and alloy condensation diagrams are drawn. There are 5 figures and 6 references: 5 Soviet and 1 non-Soviet. The two references to English language publications read as follows: T. A. McLauchlan et al. Canad. J. of Res. ser. A, 28, 550, 1950; R. J. Jennett et al. Canad. J. of Phys. 30, 576, 1952.

ASSOCIATION Kharkovskiy gosudarstvennyy universitet im. A. M. Gritsenko (Kharkov State University named)

SUBMITTED September 4, 1961

PALATNIK, L.S.; GLADKIKH, N.T.

Conditions for Zn and Cd condensation in the second (lower) cut-off
temperature region. Fiz.tver.tela 4 no.2:424-428 F '62.

(MIRA 15:2)

1. Khar'kovskiy gosudarstvennyy universitet imeni Gor'kogo.
(Metals, Effect of temperature on)

39981

S/181/62/004/008/026/041
3102/3104

24.7300

AUTHORS: Palatnik, L. S., and Gladkikh, N. T.

TITLE: Influence of the position of the ternary point on the mechanism of metal condensation in vacuo and on some properties of Zn and Cd condensates

PERIODICAL: Fizika tverdogo tela, v. 4, no. 8, 1962, 2227-2232

TEXT: The vacuum condensation of Zn and Cd on basic layers with temperature gradients of 20-300°C and with deposition rates

$\dot{m}_c = A \exp(-Q_c/RT_c) = 10^{-4} - 10^{-8} \text{ g/cm}^2 \cdot \text{sec}$ is studied, Q_c being the condensation heat and T_c the critical temperature of condensation. If $T < T_c$ the Zn and Cd crystallize from the vapor. This mechanism differs from that of Bi, Pb or Sn, and is connected with the position of the ternary point (P_0, T_0) in the P-T diagram. If $P_0 < h$ condensation takes place via the liquid phase (as happens with Bi, Pb, Sn) but if $P_0 > h$ the

Card 1/3

Influence of the position of the ...

S/181/62/004/008/026/041
B102/B104

condensate crystallizes from the gaseous phase, h being the vacuum pressure at which the experiment is made. For both Zn and Cd $\log \omega$ is a linear function of $1/T$. The temperature range of the vapor-to-crystal condensation may be divided into several sections (in the case of Zn and Cd there are three of these, A, B, and C) differing as regards orientation of the crystals. For Zn and Cd the transitions from nonoriented to oriented condensates or from one texture to another are characterized by the ratios of T_{AB} (or T_{BC}) corresponding to the boundaries between

the temperature regions A and B (or B and C) and the melting temperature T_m : For Zn the ratio $T_{AB}/T_m = 0.57$ and $T_{BC}/T_m = 0.69$, for Cd the ratio $T_{AB}/T_m = 0.58$, $T_{BC}/T_m = 0.71$. The microhardness of the condensates as a function of the base layer temperature follows a steplike course both for copper and for glass backings. This is due to the differences in porosity of the condensates and the differing orientations of the crystals. There are 5 figures and 2 tables.

ASSOCIATION: Khar'kovskiy gosudarstvennyy universitet im. A. M. Gor'kogo
(Khar'kov State University imeni A. M. Gor'kiy)

Card 2/3

Influence of the position of the ...

3/161/52/004/008/026/041
B102/3104

SUBMITTED: April 3, 1962

L 14301-63

ENP(a)/ENT(a)/BDS AFFTC/ASD JD/BDW

ACCESSION NR: AP3000102

3/0126/63/015/004/0592/0596

AUTHORS: Palatnik, L. S.; Gladkikh, N. T.; Litovchenko, T. T.

TITLE: Effect of component concentration on condensation of alloys with varied composition

SOURCE: Fizika metallov i metallovedeniye, vol. 15, no. 4, 1963, 592-596

TOPIC TAGS: alloy, component, condensation, Sb-Se, Zn-Se, Cd-Se

ABSTRACT: Alloys of varied composition, the components of which are mutually soluble in a liquid state and insoluble in a solid state, as well as alloys with totally insoluble components in both states were studied. These alloys were the binary systems of Sb-Se, Zn-Se and Cd-Se. Samples 50-100 microns thick were made by a simultaneous evaporation of the components and their condensation on a glass plate at room temperature. Subsequently they were subjected to microhardness and X-ray tests. Three sharply defined zones were observed in the Sb-Se alloys: the specular end areas (zones I and III) of an amorphous alloy, and an opaque middle area (zone II) of crystalline Sb. The microhardness variation in these areas is shown in Fig. 1 (see Enclosure 1). The Zn-Se and Cd-Se also showed a dark opaque zone II. The alloys rich in Zn or Cd had a light, slightly opaque zone I. Alloys

Card 1/12

L 14301-63

ACCESSION NR: AP3000102

rich in Se had a specular zone III. The microhardness of the zones differed sharply. Its variation in the Zn-Se alloy is shown in Fig. 2 and that of Cd-Se in Fig. 3 (see Enclosures). The authors conclude that the variation in the component concentration affects the stability of oversaturated amorphous solutions as well as the transition from one condensation mechanism (vapor → crystal) to the other (vapor → liquid). The influence of the element concentration is as strong as the effect of temperature variation. Orig. art. has: 5 figures and 1 table.

ASSOCIATION: Kher'kovskiy gosudarstvennyy universitet im. A. M. Gor'kogo
(Khar'kov State University)

SUBMITTED: 24Aug62

DATE ACQ: 12Jun63

ENCL: 03

SUB CODE: ML

NO REF SOV: 005

OTHER: 001

Card 2/52

ACCESSION NR: AP4034922

S/0181/64/006/005/1418/1423

AUTHORS: Palatnik, L. S.; Gladkikh, N. T.; Gerlovskaya, L. V.; Taran, N. M.

TITLE: The mechanism of ionic compound condensation in a vacuum

SOURCE: Fizika tvordogo tela, v. 6, no. 5, 1964, 1418-1423

TOPIC TAGS: condensation, ionic compound, temperature dependence, vacuum, sodium chloride, potassium chloride, potassium bromide

ABSTRACT: The mechanism of condensation in a vacuum was investigated with NaCl, KCl, and KBr. Samples of the vacuum condensates were prepared by evaporation from cylindrical aluminum oxide crucibles and deposition onto backings of polished copper sheets. A temperature drop in the interval 150-600°C was produced along a sheet. In all cases a boundary was clearly observed, corresponding to a critical condensation temperature T_k , above which there was no deposition. The dependence of T_k on the condensation rate ω was found to be well described by the expression

$$\omega = Ae^{-\frac{Q_k}{RT_k}}, \quad \text{where } Q_k \text{ is the heat of condensation and } A \text{ is a constant.}$$

A detailed investigation of the condensate microstructure depending on the
Card 1/2

ACCESSION NR: AP4034922

preparation conditions was carried out for KBr samples. For constant layer thicknesses the average crystal dimensions \bar{L} increased gradually with increasing temperature to 300C. In the interval 300-400C \bar{L} increased rapidly. There was practically no change in \bar{L} from 400C to T_k . At constant backing temperatures \bar{L} increased rapidly with increasing layer thickness $h < 30 \mu$, then increased more slowly. For $h \geq 60 \mu$ \bar{L} remained practically unchanged. Orig. art. has: 1 equation, 13 diagrams, and 2 tables.

ASSOCIATION: Khar'kovskiy gosudarstvennyy universitet (Kharkov State University)

SUBMITTED: 25Nov63

SUB CODE: SS

NO REF SOV: 005

ENCL: 00

OTHER: 003

ACCESSION NR: AP4044898

S/0032/64/030/009/1097/1100

AUTHORS: Palatnik, L. S.; Gladkikh, N. T.

TITLE: On the microhardness of vacuum condensates of metals

SOURCE: Zavodskaya laboratoriya, v. 30, no. 9, 1964, 1097-1100

TOPIC TAGS: microhardness, vacuum condensation/ PMT-3 load machine, MIM 8 microscope

ABSTRACT: The relationships between condensation conditions, structure, and condensate properties were investigated. Condensates of silver, copper, nickel, and iron were formed and tested under varying loads between 2 and 200 grams. Microhardness was measured by means of a PMT-3 load machine with an automatic loading feature. Machine calibration was done by first testing a sodium chloride sample. Results of test measurements are presented in four plots showing: 1) the comparative microhardness characteristics of nickel and silver condensates formed at 260C; 2) microhardness measurements for copper prepared at 70, 100, 150, 160, 270, 350, 170, and 180C for various phases of metastable liquid and crystal transitions; 3) comparative microhardness for copper condensed at both 80 and 210C; 4) microhardness for cadmium condensate prepared at 30C. Results indicated that thin condensate surface layers exhibit variable hardness. Deeper layers are quite

Card 1/2

ACCESSION NR: AP4044898

dependent upon the surface layers because of secondary processes occurring during the experiment and the disguising influence of the condensation mechanism. Orig. art. has: 5 figures.

ASSOCIATION: Khar'kovskiy gosudarstvennyy universitet (Kharkov State University)

SUBMITTED: 00

ENCL: 00

SUB CODE: MM

NO REF SOV: 008

OTHER: 001

L 00733-66

EWT(m)/EWP(i)/EWP(t)/EWP(b)

IJP(c)

JD

ACCESSION NR: AP5022738

UR/0181/65/007/009/2850/2852

AUTHOR: Palatnik, L. S.; Gladkikh, N. T.; Naboka, M. N.

TITLE: Zinc sulfide-cadmium sulfide and variable composition zinc-cadmium-sulfur condensed films

SOURCE: Fizika tverdogo tela, v. 7, no. 9, 1965, 2850-2852

TOPIC TAGS: zinc sulfide containing alloy, cadmium sulfide containing alloy, polycrystalline film, semiconducting film, cadmium sulfide, zinc sulfide, ternary alloy, alloy composition, phase composition, alloy phase diagram, cadmium compound, zinc compound, zinc alloy, cadmium alloy, alloy system, thin film, thin film deposition, quasibinary alloy

ABSTRACT: Thin (15-20 μ) sulfide films have been vacuum deposited by simultaneous vaporization of either ZnS and CdS or their components in variable proportions on a frosted glass substrate which had a temperature of 20 or 80-100C. The films were composed of quasibinary ZnS-CdS alloys or ternary Zn-Cd-S alloys of variable composition. Micrographic and x-ray structure analysis of the films and microhardness determinations made it possible to establish the triangular phase diagram of the Zn-Cd-S system and to define clearly the regions of different phase compositions. Five regions were detected, each containing one, two, or three phases.

Card 1/2

L 00733-66

ACCESSION NR: AP5022738

Separation of sulfur crystals was observed in the (S + δ) phase region after aging the films of ternary Zn—Cd—S alloys for two years (δ -phase is a series of ZnS—CdS solid solutions). Sinusoidal cracks observed earlier in CdS films on ordinary glass substrate did not appear in the films on frosted glass substrate. Orig. art. has: 2 figures. [JK]

ASSOCIATION: Politekhnikheskiy institut im. V. I. Lenina, Khar'kov (Khar'kov Polytechnical Institute) 44, 55

SUBMITTED: 01Apr65

ENCL: 00

SUB CODE: SS

NO REF SOV: 005

OTHER: 001

ATD PRESS: 4086

Card 2/2

L 4913-66 EWT(m)/EWP(i)/EWP(t)/EWP(x)/EWP(b) IJP(c) JD/HW

ACCESSION NR: AP5025324

UR/0126/65/020/003/0396/0400
621.785.3

AUTHOR: Palatnik, L. S.; Gladkikh, N.T.; Gerlovskaya, L.V.

TITLE: Effect of annealing on structure of vacuum-condensed metals

SOURCE: Fizika metallov i metallovedeniye, v. 20, no. 3, 1965, 396-400

TOPIC TAGS: metal film, vacuum, annealing, porosity, metal vapor deposition

ABSTRACT: Metal films, condensed in a vacuum, have a structure and physico-chemical properties different from these of the annealed massive metals. The Cu , Ag , Ni , and Fe films were condensed in the 5×10^{-5} torr vacuum directly on the clean polished metal base layer, or after coating it with a thin NaCl layer. The film samples were pretreated at various temperatures and then annealed at temperatures $t_a \leq 1060^\circ\text{C}$ for 0-1200 minutes. The microstructure and microhardness of samples were studied in thin cross sections before and after annealing. The curves of the dependence of the microhardness ($H\mu$) of condensed metal before and after annealing on the temperature of the base layer (T_b), of the dependence of $H\mu$ on annealing time (τ_a) and temperature (τ_a), of the dependence of the total volume of pores

Card 1/3

09010259

L 4913-66

ACCESSION NR: AP5025324

(V) and their average size (d) on T_a were plotted only for Cu and Ni, because the changes in properties of Ag and Fe were similar to those of Cu and Ni. An anomalous decrease in the microhardness of Cu was observed at $T_b \approx 1/3 T_s$ (T_s is a melting point). An annealing of Ni (t_a 1060°C, T_a 0 min.) decreased its microhardness H_μ from 400 to 100 kg./sq.mm. The presence of micropores was observed in vacuum-condensed metals after annealing. The number of pores, their size, and their distribution along the thickness of the condensed layer depended on the temperature of the base layer during condensation. The changes in structure and properties of the vacuum-condensed metals were controlled by their porosity. The following interpretation of the porosity formation is given. The highly dispersed metal layers were formed at $T_b < 1/3 T_s$ because the condensation passed through an intermediate metastable liquid phase (mechanism: vapor \rightarrow liquid \rightarrow crystal). This layer had a very distorted structure: it contained the submicropores of vacancy origin and submicrofractures caused by internal stresses. At $1/3 T_s < T_b < 2/3 T_s$, during which the condensation occurred through formation of the crystal phase nuclei and their growth (mechanism: vapor \rightarrow crystal), the submicropores were formed in the boundary between crystals by the mutual screening. The macroporosity appeared after annealing because of the pore growth and possibly because of the effect of residual gases adsorbed by the film during condensation. Orig. art.

Card 2/3

L 4913-66

ACCESSION NR: AP5025324

has: 4 figures and 1 table.

ASSOCIATION: Khar'kovskiy gosuniversitet im. A. M. Gor'kogo (Khar'kov State University); Khar'kovskiy politekhnicheskii institut im. V. I. Lenina (Khar'kov Polytechnic Institute) 44,55

SUBMITTED: 200604/4-Sep65

ENCL: 00

SUB CODE: MM, SS

NO REF SOV: 016

OTHER: 000

PC
Card 3/3

GEORGIEV, Ya.Ye.; GORODCHIKOVA, L.I.; GORODCHIKOV, L.I.;
PARITSKAYA, L.M.

Diffusion activity of vacuum condensed in connection with
the effect of reversing the flow of vacancies. Fiz. met. i
metalloved. 20 no.4:636-639, 1978.

(NFI 18411)

1. Khar'kovskiy gosudarstvennyy universitet imeni A.M.
Gor'kogo.

L 25764-66

ACC NR: AP6016366

SOURCE CODE: UR/0070/65/010/003/0399/0404

AUTHOR: Palatnik, L. S.; Naboka, M. N.; Gladkikh, N. T.

ORG: Khar'kov State University im. A. M. Gor'kiy (Khar'kovskiy gosudarstvennyy universitet); Polytechnic Institute im. V. I. Lenin (Politekhmicheskiy institut)

TITLE: Study of the aging process of vacuum condensates

SOURCE: Kristallografiya, v. 10, no. 3, 1965, 399-404

TOPIC TAGS: solid solution, cadmium, sulfur, spherulite, hardness, metal crystal

ABSTRACT: The condensation mechanism and structural conversions occurring in condensates of pure sulfur and its alloys in various concentrations are studied after ageing two years at room temperature. When solid solutions of Cd-S age, they decompose, and filamentary and conical cadmium crystals are formed (5 to 18 at. % S and 50 at. % S, resp.). When the sulfur content is 70 to 80 at. %, the sulfur re-crystallizes. Filamentary crystals of antimony form when Sb-Se alloys age over a period of 5 years. Sulfur condenses as a liquid from the vapor phase on a glass substrate at 20°C; at - 80°C, the vapor condenses in crystals. Spherulites form in sulfur films deposited on molybdenum substrates at - 80°C and in deposits of sulfur alloys of Cd, Zn, and Sb-Se at - 20°C on polished glass. Curves of microhardness as a function of composition are plotted for Cd-S. Orig. art. has: 6 figures and 1 table. [JPRS]

SUB CODE: 20 / SUBM DATE: 01Jul64 / ORIG REF: 009

Card 1/1 *CC*

UDC: 548.526

GLADKIKH, N.Ya.

Design of the profile of the guide block for winding
mechanisms with hydraulic drive. Izv. vys. shkol. zav.:
tekhn. tekhn. prom. no.1-19-142 '64. (MIRA 17-5)

1. Tashkent'skiy tekstil'nyy institut.

On 10/10/71, the
Director, CIA, advised the
President of the United States
that the CIA had received
information from a source
that the Soviet Union was
planning to launch a
major offensive against
the United States in the
near future.

GLADKIKH, P. A.

AID P - 1106

Subject : USSR/Engineering

Card 1/1 Pub. 78 - 17/21

Author : Gladkikh, P. A.

Title : Means for elimination of vibration in the pipe lines
at a compressor plant

Periodical : Neft. khoz., v. 32, #10, 84-88, 0 1954

Abstract : The main causes of vibration of pipe lines are related
to pulsating air flow and, in addition, to mechanical
reinforcements of pipe supports. The author introduced
an acoustical volume as a vibration compensator con-
nected with the pipe line. Three drawings, 6 charts
and 1 Russian reference (1953).

Institution : VNII Stroyneft (All-Union Scientific Research Institute
for Petroleum Developments)

Submitted : No date

AID P - 2698

Subject : USSR/Engineering

Card 1/1 Pub. 78 - 16/21

Author : Gladkikh, P. A.

Title : Gas pulsation in a pipe-line and methods of its measurement

Periodical : Neft. khoz., 33, 5, 78-85, My 1955

Abstract : Piston pumping installations cause a gas pulsation in pipe-lines. The amplitude and other characteristics of these pulsations are important for proper pipe-line design. The author describes special meters installed in the Saratov-Moscow pipe-line to measure those pulsations. Diagrams, photos. References: Total 5, Russian 3 (1948-1954).

Institution : None

Submitted : No date

SOV/124-58-8-8739

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 8, p 55 (USSR)

AUTHORS: Gladkikh, P.A., Maksutov, R.A.

TITLE: Reducing Pressure Fluctuations in Pipelines (Gasheniye kolebaniy pul'satsiy davleniya zhidkosti v truboprovodakh)

PERIODICAL: Novosti nef. tekhn. Neftepererabotka, 1957, Nr 6, pp 20-24

ABSTRACT: To reduce pressure fluctuations in pipelines, air chambers are usually installed directly on the pumps or directly alongside them. To prevent explosions and the carry-off of air from the chambers it is recommended that the connection of the latter to petroleum pipelines operating under pressure consist of connecting pipes filled with a medium in which air is not soluble. Full-scale investigations conducted with an electrical strain-gage apparatus developed at the VNIISroyneft' Institute (All-Union Scientific Research Institute for Construction in the Petroleum and Gas Industry) revealed the following: 1) The amplitude of the pressure fluctuations in pipelines connected to piston pumps depends on the mean pressure. The amplitude of the pressure fluctuations is greatly increased when a localized hydraulic resistance is present at the end of the pipeline.

Card 1/2

SOV/124-58-8-8739

Reducing Pressure Fluctuations in Pipelines

2) When air chambers are employed, the reduction in pressure fluctuation which they produce extends through the entire length of the line between the pump and any localized hydraulic resistance encountered (e.g., a heat exchanger, a condenser, etc.) regardless of where along the line the air chamber may be connected. 3) When an air chamber is used, the amplitude of the pressure fluctuations in a pipeline does not increase proportionately with the mean pressure.

M.E. Faktorovich

25(2)

PHASE I BOOK EXPLOITATION

SOV/1271

Gladkikh, Petr Andreyevich

Vibratsiya oborudovaniya kompressornykh stantsiy (Vibrations in Compressor Plant Equipment) Moscow, Gostoptekhnizdat, 1958. 104 p. (Series: Novaya tekhnika neftyanoy promyshlennosti) 2,000 copies printed.

Executive Ed.: Martynova, M.P.; Tech. Ed.: Polosina, A.S.

PURPOSE: This booklet is intended for engineers, technicians, and mechanics constructing and operating plants in the petroleum, gas, chemical and other industries where gases and fluids are pumped. It may also be useful to designers of piston-pump plants.

COVERAGE: The author presents in simple form essential information on the theory of vibrations and discusses forces causing vibrations. Methods are given for measuring vibrations in structures and pulsation flow in pipelines. Special emphasis is place on

Card 1/5

Vibrations in Compressor Plant Equipment

SOV/1271

practical methods of preventing vibrations in existing and projected plants. In order to facilitate use of the material covered some practical examples are given. No calculations are mentioned. There are 32 references, of which 23 are in Russian and 9 English.

TABLE OF CONTENTS:

Damaging Effect of Vibration on the Performance of Compressors and Pump Plant Equipment	3
Forces Causing Vibrations in Pipelines and Machines	11
Pulsation Flow	14
Inertia Forces of the Moving Parts of Machines	18
Wind Load	20
Card 2/5	

Vibrations in Compressor Plant Equipment	SOV/1271	
Elements of Vibration Theory		21
Elastic Pressure Waves		26
Measurement of Vibrations in Pump Plants and Pipelines, and Pressure Pulsations of Fluids and Gases in Pipes		33
Electric Pressure-pulsation Measuring Device		34
Bonded-wire Resistance Gages (Strain Gages)		39
Measurement of Forced Vibrations		41
Measurement of Natural Vibrations		44
Methods of Damping Pulsation-flow		46
Examples of Calculating the Volume of Surge Chambers [Volume Bottles]		54
Card 3/5		

Vibrations in Compressor Plant Equipment	SOV/1271	
Example of Determining the Efficiency of Existing Surge Chambers [Volume bottles]		58
Experimental Investigations of Dampeners of Gas-pressure Pulsations in Pipelines		62
Practical Directions for Using Surge Chambers and Acoustic Filters		74
Effect of Foundations and Supports on Vibration in Pipelines and Pump Plants		79
Vibration-insulation for Pipelines and Pump Plants		81
Vibration-insulating Packings [Vibration Absorbers]		85
Vertically-adjustable Pipe Supports		87
Elimination of Thermal Stresses in Pipelines [Pipe Bends]		89
Card 4/5		

Vibrations in Compressor Plant Equipment	SOV/1271	
Some Standards for Allowable Vibrations		91

24(1);14(5)

PHASE I BOOK EXPLOITATION

SOV/2965

Gladkikh, Petr Andreyevich, and Sergey Aramovich Khachaturyan

Vibratsii v truboprovodakh i metody ikh ustraneniya (Methods of Eliminating Vibrations in Pipes) Moscow, Mashgiz, 1959. 242 p. Errata slip inserted. 2,500 copies printed.

Reviewer: L. Ya. Tsikerman Candidate of Technical Sciences; Ed.: L. B. Kublanovskiy, Candidate of Technical Sciences; Ed. of Publishing House: A. L. Tairova; Tech. Ed.: V. D. El'kind; Managing Ed. for Literature on Machine and Instrument Construction: N. V. Pokrovskiy, Engineer.

PURPOSE: This book is intended for technical personnel, designers, mechanics, and scientific workers.

COVERAGE: The book deals with the theory of the generation of vibrations in pressure pipelines and piston-blower installations. Practical suggestions for lowering vibrations to a permissible level are given. The use of acoustic filters as pulsating pressure dampers is described. N. N. Andreyev and A. I. Belov are mentioned for their contributions to the development

Card 1/5

Methods of Eliminating (Cont.)

SOV/2965

of the theory, design, and testing of acoustic filters used on compressors. There are 57 references: 37 Soviet, 18 English, and 2 German.

TABLE OF CONTENTS:

Preface	3
Ch. I. Introduction	5
1. Basic concepts	11
2. Natural and forced vibrations	12
3. Sound waves	15
4. Representation of vibrations in the form of complex numbers	22
Ch. II. Differential Equations for a Compressible Fluid	27
1. The wave equation and its solutions	27
2. Forced vibration of fluid in a tube without friction	31
3. Equation for a compressible fluid with friction taken into account	34

Card 2/5

Methods of Eliminating (Cont.)

SOV/2965

4. Analogy between the flow of electric current and compressible fluid flow in pipes	39
5. Piping as a quadripole	40
Ch. III. Acoustic Method of Damping Pulsating Pressure	44
1. Pulsating flow, the principal source of vibration in pipes	44
2. Natural frequencies in piping systems of compressor stations	48
3. Damping flow pulsations with surge tanks and acoustic absorbers	56
4. Damping pulsations in compressor stations	78
Ch. IV. Design of Surge Tanks	85
1. Necessary extent of damping pressure pulsations	85
2. Design of a T-shaped link	86
3. Determining volume of a surge tank in series connection	90
4. Example of damping pulsations in an operating compressor station	91
Ch. V. Mechanical Methods of Damping Vibration of Compressors and Adjoining Piping	95

Card 3/5

Methods of Eliminating (Cont.)

SOV/2965

1. Extent of permissible vibrations	95
2. Foundations for compressors	96
3. Directions for designing vibration insulation for machines with periodic shaking force	100
4. Selecting parameters for vibration insulation	102
5. Spring shock absorbers	104
6. Rubber shock absorbers	112
7. Combined shock absorbers	117
8. Location of vibration insulators	121
9. Determining whirling frequencies for insulated plants	123
10. Determining amplitudes of plant's forced vibrations	124
11. Determining disturbing forces transferred to supporting structures	127
12. Adjustable pipe supports	129
13. Expansion bends	130
Ch. VI. Investigating Vibrations at Compressor Stations	136
1. Instruments for measuring vibrations	136
2. Fundamentals of vibration-recording analysis	158
3. Methods of investigating vibrations and gas pulsations in pipes	165

Card 4/5

Methods of Eliminating (Cont.)

SOV/2965

4. Vibrations in compressor stations	170
5. Vibrations in piping	174
6. Investigating surge tanks and acoustic absorbers	189
7. Vibrations in compressor installations	202
Ch. VII. Vibrations in Pumping-station Piping	204
1. Nonuniformity of pump output	205
2. Damping pulsations of fluid in piping by air chambers	209
3. Use of air chambers in the presence of local hydraulic resistance	214
4. Pulsation of fluid in piping with an <u>air-free</u> surge chamber	219
5. Vibration-resistant heat insulation of industrial piping	229
6. Recommendations for preventing and eliminating vibrations in pump and compressor installations	238
Bibliography	240

AVAILABLE: Library of Congress (TA492.P6G5)

Card 5/5

VK/ec
1-28-60

GLADKIKH, Petr Andreyevich; SOLGANIK, G.Ya., ved. red.; BASHMAKOV,
G.M., tekhn. red.

[Elimination of pressure pulsations in gas pipelines]
Ustranenie pul'satsii davleniia v gazoprovodakh. Moskva,
Gostoptekhzdat, 1962. 108 p. (MIRA 15:9)
(Gas, Natural--Pipelines) (Pressure regulators)

DUBININ, M.M., inzh.; GLADKIKH, P.A.

"Piston compressors" by M.I.Frenkel'. Reviewed by M.M.Dubinina,
P.A.Gladkikh. Vest.mashinostr. 42 no.11:89 N '62. (MIRA 15:11)
(Air compressors) (Frenkel', M.I.)

GLADKIKH, P.A., doktor tekhn.nauk

Safety measures at compressor stations. Bezop.truda v prom. 7 no.7:
3-5 J1 '63. (MIRA 16:9)

1. Vyssheye tekhnicheskoye uchilishche im. Bauman. (Compressors—Safety measures)

GLADIKH, P.A.; KHACHATURYAN, S.A.; KAZAKEVICH, V.V., doktor tekhn. nauk, prof., retsenzent; BODNEK, V.A., doktor tekhn. nauk, prof., retsenzent; DANILOV, L.N., inzh., red.; DANILIN, L.N., red.izd-va; TIMOFEYEVA, N.V., tekhn. red.

[Preventing and eliminating vibrations in pumping units]
Preduprezhdenie i ustranenie kolebaniy magnetotol'nykh ustanovok. Moskva, Izd-vo "Mashinostroyeniye," 1964. 274 p.
(MIRA 17:4)

GLADKIKH, P.A., dr. tekhn. nauk

Vibration of piston-type compressors. Prom. energ. 10 no.6:
16-21 Je'67. (MIRA 1737)

GLADIKH, S. G.

Results on investigation on DDT soap. Gig. sanit., Moskva
no.6:48-49 June 1951. (GLML 21:1)

1. Of the Central Disinfestation Institute of the Ministry
of Public Health USSR.

GIADKIKH, S. G.

Studies on repellents of carriers of human transmissible diseases.
Med. parazit., Moskva no.1:82-85 Jan-Feb 1953. (CLML 24:4)

1. Of the Department of Disinfection of the Central Scientific-Research
Institute of the Ministry of Public Health USSR (Director of Institute
-- Prof. V. I. Vashkov: Head of Department -- Prof. A. I. Tregubov).

GLADKIKH, S. G.

USSR/Medicine - Insect Repellents

Nov 53

"Substances Which Repel Arthropoda That Act as Transmitters of Infectious Diseases," S. G. Gladkikh, Central Sci-Res Disinfection Inst, Min Health USSR

Zhur Mikro, Epid, i Immun, No 11, pp 61-65

In the USSR, the use of K preparation (bisethyl-xanthogen) and anabasine sulfate as insect repellents applied to the skin has not been adopted widely. Dimethylphthalate (I), 2-ethylhexane-1, 3-diol, indalone, and diethylphthalate (II) have been found to be the most suitable and effective

271T44

repellents for application to the skin and for the treatment of fabrics. Data on the effectiveness of I and II as skin repellents for sandflies and mosquitoes have been obtained in field tests and are described.

"APPROVED FOR RELEASE: Tuesday, September 17, 2002 CIA-RDP86-00513R000
APPROVED FOR RELEASE: Tuesday, September 17, 2002 ~~CIA-RDP86-00513R0005~~

GLADIKH, S.G.

[Typhus fever transmitted by parasites and its control] Parasitar-
nye tify i bor'ba s nimi. Moskva, Medgiz, 1954. 83 p. (MLRA 7:12)
(Typhus fever)

GLADIKH, S.G.

Conference on control of tick-borne vernal encephalitis. Zhur.
mikrobiol.epid. i immun. no.9:124-126 S '54. (MLBA 7:12)
(ENCEPHALITIS, EPIDEMIC, prevention and control,
Russia, conf.)

GLADKIKH, S.G.

Effects of tick-repellents in voci of vernal tick-borne encephalitis. Zhur.mikrobiol. epid. i immun. no.7:80-84 J1 '55.
(MLRA 8:9)

1. Iz Tsentral'nogo nauchno-issledovatel'skogo dezinfektsionnogo
instituta Ministerstva zdravookhraneniya SSSR (dir. A. A. Ryzhov)
(ENCEPHALITIS, EPIDEMIC, prevention and control,
vernal tick-borne encephalitis, tick-repellents)
(TICKS,
repellents, control of vernal tick-borne encephalitis)

KORTEV, A.I., kandidat meditsinskikh nauk

Typhus fever transmitted by parasites and its control. S.G.
Gladkikh. Reviewed by A. I. Korte v. Sov.med.19 no.9:92-93
S 155. (MLRA 8:12)

(TYPHUS FEVER) (PARASITOLOGY) (GLADKIKH, S.G.)

GLADKIKH, S.G.; SHILOVA, S.A.; TKACHENKO, N.N.

Organization of tick control in the taiga. Voen.-med. zhur. no.3:
67-69 Nr '56. (MIRA 9:9)

(TICKS AS CARRIERS OF DISEASE)

(DDT (INSECTICIDE))

(TAIGA)

GLADIKH, S.G.

Russiantick-borne encephalitis. Zhur.mikrobiol.epid. i immun. 27
no.6:122-124 Je '56. (MLRA 9:8)

(ENCEPHALITIS)

(DISINFECTION AND DISINFECTANTS)

GLADKIKH, S. G.

"New Data on the Epidemiology of Tick-Borne Encephalitis,"
by S. G. Gladkikh, Candidate of Medical Sciences, Voyenno-
Meditsinskiy Zhurnal, No 9, Sep 56, pp 13-22 ✓

This article discusses data accumulated by several authors and researchers within the past 20 years concerning the epidemiology and prophylaxis of tick-borne encephalitis. It includes such lines of study as geographic distribution, epidemiological peculiarities, degree of infectivity of various groups of people, ticks and the extent to which they carry the virus of this disease, tick control, routes of infection, diagnosis, differential diagnosis of forms of the disease, clinical picture, and therapy.

The following species of Ixodes ticks are mentioned as known or suspected carriers of tick-borne encephalitis: *Ixodes persulcatus*, *Dermacentor marginatus*, *Haemaphysalis concinna*, *Dermacentor silvarum*, and *Ixodes ricinus*. Gamasoid ticks noted are *Eulaelaps stabularis*, *Haemogamasus nidi*, and *Haemogamasus ambulans*. The article discusses habits, nutrition, manner of attachment, hosts, and foci of these species.

Several diseases with a hemorrhagic syndrome, such as Omsk or West Siberian hemorrhagic fever, hemorrhagic nephros-nephritis, and hemorrhagic fever with the nephritic syndrome, are discussed. M. P. Chumakov, who named the disease known as "milk fever," considers that it is identical with two-wave meningoencephalitis but different from tick-borne encephalitis. The connection of mouselike rodents with the spreading of these diseases is considered. A demyelinating form of encephalomyelitis which had a natural reservoir, Vilyuysk encephalomyelitis, was described in 1955.

The article lists three main objectives to be accomplished by tick-control measures: elimination of sources of infection (ticks in woods and on domestic animals), protection of the population from ticks, and vaccination of contingents of the population which come into frequent contact with ticks. DDT and hexachlorane are recommended for use in heavily populated areas containing large numbers of ticks. When the preparation is used in the form of a dust, 30-50 kg per hectare are distributed by hand or by various dusting or spraying devices. Apparatuses mentioned are OPM, "Serna-3," AAG, and AGL-6 the back-packed duster. The article notes that use of these sprayers in the taiga is difficult and that they are most effective on road shoulders, camp grounds, and village outskirts. The author suggests that wooded areas be treated from the air by plane or helicopter. He says that one spraying in the spring with a 10% dust of DDT produces almost complete annihilation of ticks over the course of the season. The article cites investigations of the author in cooperation with S. A. Shilova and N. N. Tkachenko in which it was established that two seasons must elapse before the original number of ticks is restored.

A description is given of the 1954-55 testing of hexachlorane smoke pots (NBK-G17) for the control of *Ixodes persulcatus* proposed by V. A. Nabokovym, V. V. Burley, and V. I. Kazakova. Details are given on methods of ridding domestic animals of ticks with 10% DDT dust, hexachlorane dust, and a 5% ointment of DDT and hexachlorane. Individual protective agents are recommended for marches, expeditions, etc. Ye M. Pavlovskiy, G. S. Pervomayskiy, K. P. Chagin, and others are cited as having developed tick-repellents for personal protection.

The article notes that repeated infection with tick-borne encephalitis is not observed as a rule. It briefly describes a method of active immunization developed on the basis of the fact that tick-borne encephalitis confers intense and stable immunity. The article considers that the vaccine prepared from inactivated phenol and formalin virus guarantees immunity for one year. It says that the vaccine has disadvantages, i.e., it must be administered three times, causes sharp pain when introduced subcutaneously, and can incite individual cases of the disease among those inoculated. It is suggested that two inoculations be given in the fall and three (revaccination) in the winter. The author mentions improved preparations which have been proposed, such as a dry vaccine and a concentrated vaccine. These vaccines have been tested in the laboratory and in epidemiological practice but have not yet been widely distributed. The possibility of preparing a vaccine from live attenuated virus is suggested.

"APPROVED FOR RELEASE: Tuesday, September 17, 2002

CIA-RDP86-00513R000

APPROVED FOR RELEASE: Tuesday, September 17, 2002

CIA-RDP86-00513R0005

Abstract of a report by the U.S. Army Medical Research and Development Command, Fort Detrick, Maryland, dated 1985, concerning the use of a computerized system for the analysis of data from a study of the effects of a chemical agent on the central nervous system.

The study was conducted to determine the effects of a chemical agent on the central nervous system. The agent was administered to a group of subjects, and the effects were measured. The data were analyzed using a computerized system, and the results were compared to a control group. The results showed that the chemical agent had a significant effect on the central nervous system, and the computerized system was found to be a useful tool for the analysis of such data.

The following is a summary of the results of the study:

1135. TICK-BORNE ENCEPHALITIS IN THE MOLOTOV REGION (Russian text) -
Gladkikh S.G., Kipriyanova N.V. and Ustinova A.P. -
VOP. VIRUS. 1957, 3 (165-167)

Tick-borne encephalitis in Molotov Region is known from 1939. Since 1953 a rise of incidence is noted which is due to the extensive peopling. Infections are observed mainly around forest settlements. In such areas mature ticks feed chiefly on domestic animals. The tick *Ixodes persulcatus* is the principal vector of the disease. There may be observed a continuous process of appearance of new foci of infection and disappearance of old ones. Woodcutters and members of their families are the most affected population group. In some areas the index of incidence among woodcutters has reached 16%. Twenty-eight per cent of patients were children under 16 yr., 59% were newcomers. The main cause of infection is a tick bite, sometimes the cause of infection is crushing of ticks with fingers and contamination of mucous membranes. Only 4.2% of infections may be attributed to the use of raw goat milk. The clinical course of the disease is comparatively mild: lethality does not exceed 1%. The meningeal form of the disease is observed in 80% of cases, abortive forms in 10%. Severe forms with paresis, paralysis, epileptic insults occur in 10% of cases. Diphasic curve of fever has been observed in 48% of cases. Progressive course of illness has been noted in 3.5% of cases. Prophylactic measures taken in 1954-1955 were the following: (1) Vaccination (15,432 persons). (2) Extermination of ticks by DDT preparations (over 1000 hectare). (3) Destruction of ticks on domestic animals (over 1500 heads). (4) Use of repellents. The proper conduct of prophylactic measures has led to the decrease of the incidence of the disease.

USSR/Zooparasitology. Ticks and Insects in Disease Vectors.
Mites.

G

Abs Jour: Ref Zhur-Biel., No 17, 1958, 77035.

Author : Gladkikh, S.G.; Shilova, S.A.; Tkachenko, N.N.;
Kurovina, A.G.

Inst :

Title : Results of Work of Conducting Anti-Tick Prophylaxis
in the Localized Region of Spring-Summer Encephalitis.

Orig Pub: Tr. Tsentr. n.-i. dezinfekts. in-ta, 1957, vyp. 10,
226-233.

Abstract: No abstract.

Card : 1/1

GLADKIKH, S. G., SHILOVA, S. A., USTINOVA, A. P., PETROVA, N. V.,
TKACHENKO, N. N., KOROVINA, A. G.

"Antitick measures in the nidi of spring-summer encephalitis."

report submitted at the 13th All-Union Congress of Hygienists, Epidemiologists
and Infectionists, 1959.

GLADKIKH, S. G.

"An Investigation of Tick Repellents."

Tenth Conference on Parasitological Problems and Diseases with Natural Reservoirs, 22-29 October 1959, Vol. II, Publishing House of Academy of Sciences, USSR, Moscow-Leningrad, 1959.

Central Disinfection Research Institute (Moscow)

GLADKIKH, S.G.; SHVETSOVA-SHILOVSKAYA, K.D.

Effective agents for protection from ticks. Voen.-med.zhur. no.8:
35-39 Ag '59. (MIRA 12:12)
(ENCEPHALITIS, EPIDEMIC, prevention & control)
(INSECT REPELLENTS)

GLADKIKH, S.G. (Moskva)

Where birds pass the night. Priroda 50 no.12:114 D '61.

(MIRA 14:12)

(Birds--Behavior)

GLADKIKH, S.G.; ZAPOROZHCHENKO, A.Ya.

Long creative life; on Viktor Andreevich Bashenin's 80th birthday, 1882-
Zhur.mikrobiol.,epid.i immun. 40 no.12:123-125 D '63.

(MIRA 17:12)

GLADRIKE, Stepan Georgiyevich; TRUMITSKIY, E.I., red.

[Preparations repelling bloodsucking insects and ticks
Sredstva otpugivayushchie krovososushchikh nasekomykh i
kleshchei. Moskva, Meditsina, 1964. 113 p.

(MIRA 17:8)

GLADKIKH, V. F.

"A Pharmacological Study of Neopentocide." Farmakol. i Tokiskol., 4, No. 4-5, 1941. Pharmacological Lab of SKHO of the USSR People Commissariat for Public Health.